REMARKS

This is in full and timely response the Office Action mailed on March 9, 2005. Reexamination in light of the following remarks is respectfully requested.

Claims 12-17 are currently pending in this application, with claims 12 and 17 being independent.

No new matter has been added.

Claim objections

While not conceding the propriety of this objection and in order to advance the prosecution of the above-identified application, claims 5-9 and 11 have been canceled.

Withdrawal of this objection is respectfully requested.

Rejection under 35 U.S.C. §101

The Office Action includes a rejection of claims 1-4 and 10 under 35 U.S.C. §101 as being directed to non-statutory subject matter.

This rejection is respectfully traversed at least for the following reasons.

While not conceding the propriety of this objection and in order to advance the prosecution of the above-identified application, claims 1-11 have been canceled.

In response to the contention that the rejected claims are directed to non-statutory subject matter, please note that rejected claim 1 is drawn to network estimation ***method***, and that rejected independent claim 10 is drawn to a network estimation ***apparatus***. In this regard, statutory subject matter pursuant to 35 U.S.C. §101 includes claims drawn to *a process*, a

machine, a manufacture, or composition of matter, or any new and useful improvement thereof. Please note that the term "***process***" found within section 101 means process, art, or ***method***, and includes a new use of a known process, machine, manufacture, composition of matter, or material. 35 U.S.C. §100(b).

Withdrawal of this rejection is respectfully requested.

Rejections under 35 U.S.C. §102

This rejection is respectfully traversed at least for the following reasons.

While not conceding the propriety of this rejection and in order to advance the prosecution of the above-identified application, claims 1-11 having been canceled without prejudice or disclaimer of their underlying subject matter, rendering these rejections as moot.

Withdrawal of this rejection is respectfully requested.

Newly added claims

Claim 12 is drawn to a method of operating a data processing system which estimates candidate networks that are descriptive of relationships between interrelated elements as a network and that, when data generated by said elements from said network is given, are capable of reproducing data based on said data given, said network being represented by a triplet comprising a network structure; a parameter set; and a degree of fitness between said data given and data reproducing from the network structure and the parameter set, said method comprising the steps of generating a plurality of candidate networks by:

producing network structures based on the partially known network structures, which may allow for reproduction of said data given;

producing corresponding parameter sets and degrees of fitness;

optimizing said networks utilizing the degrees of fitness;

storing the optimized candidate networks in a first memory means; and

narrowing down appropriate candidate networks from said networks stored in the first memory means, using data different from said given data and that can be generated from network structures which are mutants or crossovers, and storing the networks in a second memory means.

Claim 17 is drawn to a network estimation apparatus, which estimates candidate networks that are descriptive of relationships between interrelated elements as a network and that, when data generated from said network is given, are capable of reproducing said data based on said data given; said network estimation apparatus comprising:

first memory means for storing networks represented by a triplet comprising a network structure, a parameter set, and a degree of fitness between said data given and data reproduced from the network structure and the parameter set;

second memory means for storing networks as final candidates;

means for generating a plurality of candidate networks by producing a network structure based on the partially known network structures, which may allow for reproduction of said data given, producing corresponding parameter sets and degrees of fitness, optimizing said networks utilizing the degrees of fitness, and storing in said first memory means the optimized candidate networks; and

means for narrowing down and storing in said second memory means an appropriate candidate network from networks stored in said first memory means using data different from said given data and that can be generated from network structures which are mutants or crossovers.

U.S. Patent No. 5,136,686 to Koza arguably teaches a non-linear genetic algorithms for solving problems by finding a fit composition of functions whereby figure 3 is a flow-chart of the process 1300 (Koza at column 19, lines 32-33). The Create Initial Population step 1302

creates a number of programs (Koza at column 19, lines 34-35). The process terminates at End 1301 if the termination test for the process 1304 is satisfied, and continues to iterate, otherwise (Koza at column 19, lines 35-41).

The basic iterative loop of the process begins with the step Execute Each Program 1306 wherein each program executes (Koza at column 19, lines 41-43). The next step, Assign Value and Associate Value with each Program 1312, involves assigning a value (fitness) to each result produced by execution, and associating the value with the producing-program. After assigning and associating, Remove Program(s) with relatively low fitness, step 1314, causes the removal of the less fit members of the population (the term "program(s)" used herein refers to the phrase "program or programs" (Koza at column 19, lines 43-53). Although not essential, step 1314 improves the average fitness and eases memory requirements by keeping the population within reasonable limits (Koza at column 19, lines 53-55). Step 1316, Select Program with relatively high fitness values, picks at least one program to use in the following operation (Koza at column 19, lines 55-58).

At step 1318, Choose an Operation to Perform, the process determines which operation to begin (Koza at column 19, lines 58-60). Crossover 1320 and Reproduction 1330 are the basic operations performed; however, Permutation 1340 also plays a role (Koza at column 19, lines 60-63). Optionally, the operation of Mutation 1350 may be used (Koza at column 19, lines 63-64). Typically, the vast majority of operations are the reproduction and crossover operations (Koza at column 19, lines 64-65).

Crossover 1320 requires a group of at least two programs (typically two parents), so second program(s) are picked to mate with at least one selected program(s) (Koza at column 20, lines 5-7). For each mating, a crossover point is separately selected at random from among both internal and external points within each parent at Select Crossover Points 1322 (Koza at column 20, lines 13-15). Then newly created programs are produced at Perform Crossover 1324 from the mating group using crossover (Koza at column 20, lines 15-17). Two parents would typically produce two offspring (Koza at column 20, lines 17-18).

For the operation of Reproduction 1330, the Selected program(s) remain unchanged (Koza at column 20, lines 41-42). The preferred method for selecting computational procedures

for reproduction is to select them with a probability proportional to their normalized fitness (Koza at column 20, lines 42-45).

If the permutation operation is selected then the process continues at Permutation 1340 (Koza at column 20, lines 46-47). A permutation point is selected at random in Select Permutation Point 1342 from among the internal points within the selected individual (Koza at column 20, lines 47-50). Then Perform Permutation 1344 is performed, by reordering the selected program's sub-procedures, parameters, or both at the permutation points (Koza at column 20, lines 50-53).

If the mutation option is chosen, Mutation 1350 occurs (Koza at column 20, lines 54-55). The location of the mutation is picked in Select Mutation Point 1352 for each Selected program (Koza at column 20, lines 55-56). Perform Mutation 1354 then randomly generates, for each Selected program, a portion of a program and inserts it at the mutation point (Koza at column 20, lines 56-59). The portion inserted is typically a single point, but may be a sub-program (Koza at column 20, lines 59-60). Finally, the newly created programs are inserted into the population at 1360 and the process returns to the termination test 1304 (Koza at column 20, lines 61-63).

Nevertheless, Koza fails to disclose, teach or suggest either the steps found with claim 13 and the claims dependent thereon, or the features found within claim 18.

Allowance of the claims is respectfully requested.

Conclusion

For the foregoing reasons, all the claims now pending in the present application are allowable, and the present application is in condition for allowance. Accordingly, favorable reexamination and reconsideration of the application in light of the remarks is courteously solicited.

If the Examiner has any comments or suggestions that could place this application in even better form, the Examiner is requested to telephone Brian K. Dutton, Reg. No. 47,255, at 202-955-8753.

If any fee is required or any overpayment made, the Commissioner is hereby authorized to charge the fee or credit the overpayment to Deposit Account # 18-0013.

Dated: June 9, 2005

Respectfully submitted,

By_____

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